YAROVENKO, V.L.; SKALKINA, Ye.P.; PYKHOVA, S.V.; LAZAREVA, A.N.

Continuous fermentation. Trudy TSNIISP no.6:3-8 '58. (MIRA 14:12)
(Fermentation)

YAROVENKO, V.L.; SKALKINA, Ye.P.; PYKHOVA, S.V.; LAZAREVA, A.N.

Cyclic semicontinuous fermentation. Trudy TSNIISP no.6:9-14 '58.
(MIRA 14:12)

(Fermentation)

TAROVENKO, V.L.; SKALKINA, Ye.P.; PYKHOVA, S.V.

Combined processing of potatoes into alcohol and starch.
Spirit.prom. 26 no.4:4-7 '60.   (MIRA 13:8)
     (Potatoes) (Alcohol) (Starch)

YAROVENKO, V.L.; SKALKINA, Ye.P.; PYKHOVA, S.V.; LAZAREVA, A.N.

Experience in introducing and developing the continuous method
of fermentation in the processing of starchy raw materials.
Trudy TSNIISP no.7:3-16 '59.   (MIRA 13:9)
          (Fermentation)   (Alcohol)

SKALKINA, Ye.P.; YAROVENKO, V.L.; PYKHOVA, S.V.; LAZAREVA, A.N.

Multiplication of yeast cells and their distribution in the
battery in a continuous fermentation process. Trudy TSNIISP
no.7:16-23 '59.   (MIRA 13:9)
              (Yeast)   (Fermentation)

PYKHOVA, S.V.; YAROVENKO, V.L.; SKALKINA, Ye.P.; LAZAREVA, A.N.

Use of the ether - aldehyde fraction as an antiseptic in the manufacture of alcohol. Trudy TSNIISP no.7:25-28 '59.

(MIRA 13:9)

(Alcohol)   (Antiseptics)

SKALKINA, Ye.P.; PYKHOVA, S.V.

Method for the cultivation of yeast at the Petrovskiy Industrial
Alcohol Plant. Trudy VNIISP no.5:44-47 '55.   (MLRA 9:8)
                        (Petrovskiy--Yeast)

ACCESSION NR: AP4014233   S/0201/63/000/004/0107/0113

GOREV,K.V.

AUTHOR: Gorev, K. V.; Pykhowski, Ya. P.

TITLE: Investigation of heat-resisting alloys with an iron base

SOURCE: AN BSSR. Izvestiya. Ser. fiz.-tekhn. nauk, no. 4, 1963, 107-113

TOPIC TAGS: heat-resisting austenitic alloy, iron base, quaternary alloy, protracted high temperature, incipient crystallization temperature, solid austenitic solution, heterophase area, tungsten, molybdenum, aluminum

ABSTRACT: Despite the considerable number of recent studies on heat-resisting austenitic alloys, the laws governing the change in their resistance according to composition and structure and the connection of heat resistance with state diagrams have not been sufficiently investigated, particularly for the composite metallic systems described by state diagrams with four or more components. Moreover, a number of systems have been studied without taking into account the effect of the melting point on heat resistance. The paper gives the results of a study of quaternary iron-base alloys with various

Card 1/2

ACCESSION NR: AP4014233

admixtures of such elements as Co, W, Mo and Al, taking as a base the triple
alloy Fe-Cr 15-Ni 30, which is stable at protracted high temperatures due to
the high nickel content. The alloys were melted in a high-frequency induction
furnace on a layer of basic slag, and reduced with manganese and powdered
aluminum. The authors studied the dependence of the temperatures of incipient
recrystallization upon the concentration of the alloying elements and the
connection between the changes in heat resistance and those temperatures.
According to the degree of their effect on the heat-resisting properties and
the temperature of incipient recrystallization of the solid austenitic solution,
the alloying elements may be arranged thus (in terms of the same atomic
percentage);   Co → Al → W → Mo. The effect of the alloying elements in
the heterophase areas adjacent to the solid solution depends upon the nature
of the other phases, upon their propensity to coagulation. Tungsten,
molybdemum and aluminum form other phases in which the diffusion processes
are retarded, which considerably raises the heat resistance and shifts the
temperature intervals of sufficient recrystallization development to higher
temperatures.

Card 2/3 2

PYKHTAREV, I.S., kand.tekhn.nauk, dotsent

Nonplanetary (roller) differentials.   Trudy MIBI no.7:94-100 '57.
(MIRA 10:12)
(Automobiles--Transmission devices)

PYKHTEYEV,G.N. (Moscow)

See page from a canal supplied with two water-resistant drainages.
Izv. AN SSSR. Otd. tekh. nauk no.6:16-21 Je'55.   (MIRA 8:10)
(Soil percolation)

PYKHTEYEV, G.N. (Moscow)

Approximate solution of a one-dimensional problem on gas seepage in coal mines accounting for the change of the mining place. Inzh.sbor. no.21:189-194 '55.   (MLRA 8:11)

1. Institut mekhaniki Akademii nauk SSSR.
        (Coal mines and mining) (Mine gases)

ITKIMEYL, L. L.

Approximate solvation of the problem of gas filtration in coal layers with
consideration of changes in the mine cut. "Inzhinernyy Sbornik" by Academy
of Science of the USSR, Department of Technical Sciences, Institute of mechanics.
1955.

PYKHTEYEV, G. N.

USSR/Engineering - Civil - Water Canals   FD-2921

Card 1/1   Pub. 41-2/17

Author   : Pykhteyev, G. N., Moscow

Title   : Seepage from a canal when there are two points of escape around
                the irrigation gate.

Periodical   : Izv. AN SSSR, Otd. Tekh. Nauk 6, 16-21, June 1955

Abstract   : Discusses the pattern of flow, and the relative speed of flow
                of currents from a canal, which is blocked by a gate having
                vertical overflow seepage at both ends. The experiment deals
                with a very shallow canal, such as is used for irrigation, and
                the purpose of the study is to determine the patterns of erosion
                which could be expected in regions having sandy soil. Graphs
                and formulae. Two references, both USSR.

Institution   :

Submitted   : January 17, 1955

PYKHTIN,P.I.; BREDA,V.N.; KOZHARINOV,B.I., tekhnolog

Assembly-line methods in preparing containers. Teks.prom.
15 no.6:38-40 Je '55.   (MIRA 8:7)

1. Direktor mekhanicheskogo zavoda Tashkentskogo khlopchato-
bumazhnogo kombinata imeni Stalina (for Pykhtin) 2. Nachal'-
nik otdela truda i zarplaty zavoda (for Breda).
                    (Box making)

PYKHTEYEV, G. N.
USSR/Mathematics - Incompressible fluid motion   FD-643

Card 1/1	:	Pub. 85 - 10/12
Author	:	Pykhteyev, G. N. (Moscow)
Title	:	Determining the two-dimensional potential motion of an incompressible fluid from the assigned values of the direction of its velocity
Periodical	:	Prikl. mat. i mekh., 18, 379-380, May/Jun 1954
Abstract	:	Sets up the equations of hydrodynamics and reduces them to the determination of the harmonic function satisfying a certain nonlinear equation. Solves this equation. Notes that the problem of determining the flow from the given modulus of velocity was treated by A. I. Nekrasov (PMM, 17, No. 4, 1953).
Institution	:	--
Submitted	:	October 23, 1953

Pykhteyev, G.N.

21/1111   532.582.2
Flow Past Curvilinear Profiles   Prikl.Mat.Mekh.
in a Finite and Infinite Streams   19(4),421-432
of an Ideal Incompressible Fluid   1955
G.N. Pykhteyev   U.S.S.R.

Offers a solution of a reversed problem of a flow past profiles
in a tube, or in an infinite stream, whereby the shape of the
profile and the flow is sought when the expression for velocity
distribution is known.   The following cases are considered:
(i) flow past a curvilinear profile in a channel; (ii) flow
past a curvilinear profile in an infinite stream; (iii) flow
with separation past certain classes of profiles in a channel,
and in an infinite stream.(Bibl.6)

PYKHTEYEV, G.N.

5218.   APPROXIMATE SOLUTION OF THE UNIDIMENSIONAL PROBLEM OF PERCOLATION
OF A GAS IN A COAL SEAM WITH CONSIDERATION OF THE MOTION OF THE FACE.
Pykhteev, G.N.   (Inzh. Sborn. (Engng Rev., Moscow), 1955, vol. 21, 189-194;
abstr. in Ref. Zh. Mekh. (Ref. J. Mech., Moscow), 1956, (8), 5305).
Examination of the non-steady filtration of a gas (one-dimensional problem)
in a homogeneous coal seam with a given law of displacement of the face
$l_1 = l_1 (t)$.   The temperature in the seam is taken as constant, and the
filtration of the gas is ...

PYKHTEYEV, G. N.

Pykhteyev, G. N.

"Some problems of the interruption in the flow of an ideal incompress-
ible liquied around a curvilinear obstruction." Acad Sci USSR.
Inst of Mechanics. Moscow, 1956 (Dissertation for the degree of
Candidate in Physicomathematical Science)

Knizhnaya letopis'
No. 25, 1956. Moscow

PYKHTEYEV, G.N.

SUBJECT   USSR/MATHEMATICS/Theory of functions   CARD 1/2   PG - 488
AUTHOR   PYCHTEJEV G.N.
TITLE   The solution of the inverse problem of the flow around a
               plane curve with cavitation.
PERIODICAL   Priklad.Mat.Mech. 20, 373-381 (1956)
               reviewed 1/1957

For the projection of turbine and pump-impeller vanes with high cavitation
the form of the profile must be calculated from the given distribution of
velocity. The author asserts that this problem, from the mathematical point
of view, is an inverse boundary value problem for an analytic function $W(z)$
which is defined on a two-lamellar Riemannian surface. This function possesses
at infinity a pole and a logarithmic singularity on the one sheet and a
logarithmic singularity only on the other sheet, where a two-lamellar solution
is sought. The solution is found by introducing an auxiliary function, for the
determination of which former results of Gachov are used. Furthermore con-
ditions are investigated under which the obtained equations for contour and
flow lines have a physical sense. Cavitation range and resistance of the
contour are determined. The consideration of two special cases is made
separately: 1) Let the distribution of velocity on the sought contour be

$$V = V_0 \frac{tg\ \delta(s)}{tg\ \delta(1)}$$

where $C\delta + D \sin 2\delta = s$ (C,D - constants),

2) the dependence of the velocity on the curve length is given in the parameter representation $V = V_0 F_1(u)$ $s = s_0 F_2(u)$, where u is a parameter variable in (u_1, u_2) and $F_1(u)$ and $F_2(u)$ are unique and positive and satisfy the Hölder condition; furthermore

$$F_1(u_1) = F_2(u_1) = 0 \qquad F_1(u_2) = F_2(u_2) = 1.$$

INSTITUTION: Moscow.

PYKHTEYEV, G·N·

The curves $L(m, \mu)$:

$$x = -\lambda \frac{\cos^m \mu}{m} \operatorname{ctg}\mu \int_{\pi/2}^{\vartheta} \frac{1+\sqrt{1-\operatorname{ctg}^2\mu \, \operatorname{tg}^2 \frac{\pi-2\vartheta}{m}}}{(1+\sin\mu\sqrt{1-\operatorname{ctg}^2\mu \, \operatorname{tg}^2 \frac{\pi-2\vartheta}{m}})^m} \frac{\cos\vartheta \, d\vartheta}{\cos^{m+2}\frac{\pi-2\vartheta}{m}}$$

$$y = -\lambda \frac{\cos^m \mu}{m} \operatorname{ctg}\mu \int_{\pi/2}^{\vartheta} \frac{1+\sqrt{1-\operatorname{ctg}^2\mu \, \operatorname{tg}^2 \frac{\pi-2\vartheta}{m}}}{(1+\sin\mu\sqrt{1-\operatorname{ctg}^2\mu \, \operatorname{tg}^2 \frac{\pi-2\vartheta}{m}})^m} \frac{\sin\vartheta \, d\vartheta}{\cos^{m+2}\frac{\pi-2\vartheta}{m}}$$

are symmetric to the x-axis, pass through the origin and touch there the y-axis.
For $0 < \mu < \frac{\pi}{2m}$ they are monotonely increasing. By the transformation $\vartheta = \frac{\pi}{2}$

$-$ arc tg ($\operatorname{tg}\mu\cos\theta$) it is obtained that x and y are expressed by elementary
or tabulated functions. The flow around these curves by an infinite current of
an ideal, incompressible fluid can be rigorously solved by aid of the complex

potential. If the curve is the flow line $\psi = 0$ and if it is put $\varphi = 0$ in the critical point 0, while it is to be $\varphi = \varphi_o$ in the separation points symmetric to the x-axis, then the domain of the complex potential $u = \varphi + i\psi$ is a plane with a section along the real half-axis φ. For the solution an analytic function χ (w) $= \frac{dz}{dw}$ must be found which satisfies the conditions χ (0) $= \infty$;
$\chi (\infty) = \frac{1}{V_\infty}$; arg $\chi = 0$ for $\psi = 0$, $-\infty \leqslant \varphi \leqslant \varphi_o$; $|\chi| = \frac{1}{V_\infty}$ for $\psi = 0$, $\varphi_o \leqslant \varphi \leqslant \infty$;
$\frac{1}{|\chi|} \frac{d}{dw} (arg \chi) = K(arg \chi)$ for $\psi = 0$, $0 \leqslant \varphi \leqslant \varphi_o$ (K = curvature of L). Such a function is given by

$$\chi = \frac{dz}{dw} = \frac{1}{V_\infty} \frac{\sqrt{\varphi_o} - 1 \sqrt{w - \varphi_o}}{\sqrt{w}} \left[\frac{\sqrt{\varphi_o} - 1 \, tg \frac{K}{2} (\sqrt{w} - \sqrt{w - \varphi_o})}{\sqrt{\varphi_o} + 1 \, tg \frac{K}{2} (\sqrt{w} - \sqrt{w - \varphi_o})} \right]^m .$$

The equations of the flow lines are derived and an expression for the resistance of the bow is given. Special formulas are presented for the case m = 1.

PA - 2206

AUTHOR   PYKHTEYEV, G.N.
TITLE   The Determination of the Hydrodynamic Reactions on the Occasion of a
              Flow round a Curvilinear Arc, Accompanied by Stripping, according to
              KIRCHOFF's Scheme (Opredeleniye gidrodinamicheskikh reaktsij pri otryvnom
              obtekanii krivolineynoy dugi po skheme Kirkhgofa).

ABSTRACT   On the basis of methods developed by V.V.GOLUBEV the present paper shows
              that for the determination of the moment of the hydrodynamic force acting
              on a curvilinear arc (on which a flow occurs round the arc to the accom-
              paniment of the stripping off of the jet), it is necessary to know only
              three coefficients in the corresponding decomposition of the function χ =
              dz/dw. First the investigations carried out by V.V.GOLUBEV are discussed
              in short. In this connection a perfect incompressible liquid is assumed
              to flow round an assumed curvilinear arc L according to KIRCHOFF's scheme.
              On the occasion of this flow round the arc L, which is accompanied by
              stripping, the component of compressive force is determined according to
              JOUKOVSKY's theorem. For the moments of the compressive force t with re-
              spect to the coordinate origin of coordinates a formula is given. Next,
              decomposition of the function χ in the w-plane and several theorems are
              dealt with. This decomposition is here written down for any point located
              on the jet and is several times transformed by differentation and various
              substitutions. Several theorems by V.V.GOLUBEV are then given, after
              which an equation for the line of application of the force is derived.

Card 1/3

PA - 2206

The Determination of the Hydrodynamic Reactions on the Occasion of a Flow round a Curvilinear Arc, Accompanied by Stripping, according to KIRCHOFF's Scheme.

For the determination of the moment of the force P and its line of application it suffices to know three coefficients in the corresponding decomposition as well as one constant which occurs after integration of this decomposition. The next chapters deal with the osculation curve of the line of application of the force P for the case of a modification of the angle of application or of the angle of deviation and the flow round a plate which is inclined towards the flow in accordance with KIRCHOFF's scheme. All existing methods for the solution of problems of the jet-like flow round a curvilinear obstacle are based on the fact that solution is sought in a certain auxiliary plane ζ . A certain auxiliary function $\phi(\zeta)$ is used on this occasion which contains the JOUKOVSKIJ function $\ln(V_-^{-1}dw/dz)$ in itself. The development of the function $\phi(\zeta)$ is determined, after which it is shown that it is possible, if this decomposition is known, to determine the influence exercised by the flow on the body by means of the formulae found by the present paper. In conclusion the connection between the development coefficients of the functions $\chi(w)$ and $\phi(\zeta)$ is dealt with. (4 illustrations)

Card 2/3

PA - 2206

The Determination of the Hydrodynamic Reactions on the Occasion of a
Flow round a curvilinear Arc, accompanied by Stripping, according to
KIRCHOFF's Scheme.

ASSOCIATION   Institute for Mechanics of the Academy of Science of the U.S.S.R.
PRESENTED BY
SUBMITTED   9. 12. 1955
AVAILABLE   Library of Congress

Card 3/3

AUTHOR PYKHTEYEV G.N.
TITLE   The Flow Round A Given Obstacle Accompanied by Stripping (According to
        KIRCHHOFF'S) Of A Family Of Curves In A Limited Flow.
        (Otryvnoye obtekaniye po skheme KIRKHGOFA odnogo semeystva krivykh v o-
        granichennom potoke, -Russian)

ABSTRACT   Closed solutions of the problem of the flow round a given obstacle limi-
            ted by two parallel walls of a perfect incompressible liquid (accompanied
            by stripping and in accordance with Kirchhoff's scheme) have hitherto been
            available only for plates and wedges. The present paper supplies an exact
            solution of this problem in closed form for a certain two-parametric fami-
            ly of curves. First, the rather voluminous equations of the curve (here
            called curve $L(m, \mu, \epsilon)$) are given. By going over to a new variable it is
            possible to simplify the equation of the curve $L(m, \mu, \epsilon)$. The curve $L(m,
            \mu, \epsilon)$ is symmetric with respect to the x-axis, it passes through the ori-
            gin of coordinates, on which occasion it touches the y-axis. With $0 < \mu <
            \pi/2m$ this curve increases monotonously and at $\mu = 0$ it becomes a straight
            line which agrees with the y-axis.
            The author then studies the problem of the flow round the curve $L(m, \mu, \epsilon)$
            (accompanied by stripping) of the plane flow of a perfect incompressible
            liquid in a channel, having the width H, in accordance with Kirchhoff's
            scheme. Selection of the flow line $\psi = 0$ is described. Owing to symmetry

Card 1/2

The Flow Round A Given Obstacle Accompanied by Stripping PA - 3129
(According to KIRCHHOFF'S) Of A Family Of Curves In A Limited Flow.

it suffices to investigate only that part of the flow which is above the
x-axis. In order to solve the problem it is sufficient to determine the
function $\chi(w) = \ln((dz/dw)V_0)$, which is analytical within a certain stri-
pe and which must satisfy certain conditions written down here. The authoral-
so gives the expression for ψ. The solution of the problem is then expli-
citly written down. As an example the flow round the curve $L(1, \mu, \epsilon)$ is
computed.
In conclusion the behavior of the curves in the case of $\mu > \pi/2m$ is discus-
sed. The shape of the curves $L(m, \mu)$ and of the jet changes with a change
of the parameters m and μ as also the shape of the curves $L(m, \mu, \epsilon)$.
(with 1 illustration)

ASSOCIATION   Institute for Mechanics of the Academy of Science of the U.S.S.R.
PRESENTED BY NEKRASOV A.I., Member of the Academy
SUBMITTED   5.10.1956
AVAILABLE   Library of Congress
Card 2/2

S/0199/63/004/004/0845/0861

ACCESSION NR: AP3004304

AUTHOR: Py*khteyev, G. N.

TITLE: Solution of one mixed boundary-value problem with displacement and inversion formulas for certain singular integral equations of the first kind

SOURCE: Sibirskiy matematicheskiy zhurnal, v. 4, no. 4, 1963, 845-861

TOPIC TAGS: mixed boundary value problem, inversion formula, singular integral equation, first kind integral equation, displaced boundary condition, cavitation flow, Volterra problem

ABSTRACT: The following problem, called the V_1 problem, is investigated: On the real axis four points $a<d<c<b$ are given, and on the intervals $[-\infty, a]U[b,\infty]$, $[d,c]$, $[c,b]$, the corresponding three real functions $\phi(x)$, $\Psi(x)$, $\phi(x)$ are defined, of which $\phi(x)$ establishes a one-to-one correspondence between the points of intervals $[c,b]$ and $[d,c]$. On the upper half-plane $z = x + iy$ an analytic function $F(Z)$ bounded at infinity and continuous on the real axis is to be determined from the following boundary conditions:

Card 1/3

ACCESSION NR: AP3004304

$$\text{Re}F(x) = \phi(x) \quad (-\infty \leqslant x \leqslant a, \ b \leqslant x \leqslant \infty),$$

$$\text{Im}F(x) = \Psi(x) \quad (d \leqslant x \leqslant c),$$

$$F_{ad}(\phi(x)) = F_{cb}(x) + 2\gamma \quad (c \leqslant x \leqslant b),$$

$$F_{cb}(\Psi(x)) = F_{ad}(x) - 2\gamma \quad (a \leqslant x \leqslant d),$$

where $\psi(\phi(x)) = x$ (inverse function), γ is a real constant and the
notations F_{ad} and F_{cb} signify the boundary values of $F(z)$ on the
intervals [a,d] and [c,b], respectively.   The problem defined arises
in connection with plane cavity flow and is similar to the Volterra
problem (called the V problem).   When functions $\phi(x)$, $\Psi(x)$, and $\phi(x)$
satisfy certain conditions, the solution of the V_1 problem is reduced
to the singular solution of an integral equation of the first kind.
Contitions are established under which this integral equation can be
reduced to a well-known form.   Theorems are proved establishing con-
ditions under which the problem V_1 has a unique solution.   An exact
solution of the derived integral equation is presented for cases when

Card 2/2

ACCESSION NR: AP3004304

$\phi(x)$ is a linear or fractional-linear function. Orig. art. has:
76 formulas.

ASSOCIATION: none

SUBMITTED: 28Feb62   DATE ACQ: 15Aug63   ENCL: 00

SUB CODE: MM   NO REF SOV: 017   OTHER: 003

Card 3/3

L 1991-66   EWT(d)   IJP(c)
ACCESSION NR:. AP5023881

UR/0199/65/006/004/0900/0917
517.948.32/.33

AUTHOR: Pykhteyev, G. N.

TITLE: Solution of a translated Dirichlet problem and of certain singular integral equations of the first kind

SOURCE: Sibirskiy matematicheskiy zhurnal, v. 6, no. 4, 1965, 900-917

TOPIC TAGS: Dirichlet problem, boundary value problem, singular integral equation

ABSTRACT: The "translated" Dirichlet problem is to find a function F, analytic in the upper half-plane, bounded at infinity, and having a given real part on the real axis, except on an interval $[a,b] = [a,c] + [c,b]$, on which is given the sum of the complex values of F to be taken at corresponding points of the partial intervals. There is a twice differentiable, monotone decreasing map of $[c,b]$ onto $[a,c]$, in terms of which the boundary conditions are expressed. The given functions are assumed to satisfy a Hölder condition and to approach 0, as $|x| \to \infty$, at least as fast as $1/|x|^{\sigma}$ $(\sigma > 0)$. The solution is given in closed form, both for the case of continuous boundary values

Card 1/2

L 1991-66

ACCESSION NR: AP5023881

(1) and for the case of integrable discontinuities at a or b (2).
The problem is transformed into a singular integral equation of the
first kind, which in turn is written as a "complete singular
equation." (Two transformation methods are given.) The solution is
unique in case (1) and unique up to an additive constant in case (2).
Several concrete examples are worked out in both cases. Orig. art.
has: 89 formulas.

ASSOCIATION: None.

SUBMITTED: 28Sep63   ENCL: 00   SUB CODE: MA

NR REF SOV: 007   OTHER: 001

Card 2/2

L 32189-66   EWT(1)/EWP(m)   WW

ACC NR: AP6013925

SOURCE CODE: UR/0207/66/000/002/0072/0086

53
52

AUTHOR: Pykhteyev, G. N. (Novosibirsk)

ORG: none

TITLE: Methods for solving a nonlinear integrodifferential equation for the theory of ideal fluid jets

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1966, 72-86

TOPIC TAGS: jet flow, nonlinear integral equation, liquid flow, ideal fluid

ABSTRACT: The author develops methods for solving the equation:

$$u'(\xi) = \lambda\gamma(\xi)U(u(\xi)+\alpha(\xi))V(-T(u|\xi)+\beta(\xi))+\delta(\xi), \quad \xi \in [-1,1] \quad (A)$$

where $\alpha(\xi)$, $\beta(\xi)$, $\gamma(\xi)$, $\delta(\xi)$, $U(u+\alpha)$, $V(-T+\beta)$ are given functions of their arguments, λ is a given parameter and $T(u|\xi)$ is a singular integral of the form

$$T(u|\xi) = \frac{\omega(\xi)}{\pi}\int_{-1}^{1}\frac{u(t)}{t-\xi}\frac{dt}{\omega(t)}, \quad \xi \text{ on } [-1,1] \quad (0.1)$$

Card 1/2

. L 32189-66
ACC NR: AP6013925

The proposed methods are applied to jet flows along a curved wall and to jet flows
of a heavy liquid with rectilinear boundaries. The limits of applicability for
these methods are discussed. The majorant equations for the two classes of jet flow
have the same form. In order to use these methods effectively, exact and approxi-
mate methods for computing the given integrals must be developed. Orig. art. has:
3 figures, 3 tables, 57 formulas.

SUB CODE: 20,12/ SUBM DATE: 06Nov64/ ORIG REF: 009/ OTH REF: 001

Card 2/2 ᴍᴄ

L 31093-66   EWT(d)   IJP(c)
ACC NR: AP6022812   SOURCE CODE: CZ/0026/65/010/004/0351/0373

AUTHOR: Pykhteyev, G. N.

ORG: Institute of Hydrodynamics, Siberian Department, AN SSSR, Novosibirsk
(Institut gidrodinamiki Sibirskogo otdeleniya AN SSSR)

TITLE: Exact methods for evaluation of Cauchy type integrals on an unclosed contour

SOURCE: Aplikace matematiky, v. 10, no. 4, 1965, 351-373

TOPIC TAGS: analytic function, mathematic analysis, integral function

ABSTRACT: The following methods are suggested in the
paper for evaluation of certain integrals. Inside the circle
in the z-plane the so-called representing function of the in-
tegrals $F(z)$ is found. Then the integrals are evaluated by the
formulas given, whose form depends on the class in which the re-
presenting function is obtained. Three cases are considered in
the paper: 1) the representing function $F(z)$ is analytic in the
circle; 2) $F(z)$ is meromorphic, and 3) $F(z)$ is the logarithm of
a meromorphic or analytic function. Four different methods are
given for the construction of the representing function $F(z)$.

Orig. art. has: 83 formulas. [JPRS]

SUB CODE: 20, 12/ SUBM DATE: 03Feb64/ SOV REF: 008

Card 1/1

PYKHTEYEV, G.N. (Novosibirsk)

"Nonlinear boundary value problems of the jet theory and some methods of their solution"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

16.3000
16.3300

S/044/62/000/003/016/092
C111/C222

AUTHOR: Pykhteyev, G. N.

TITLE: On two representations of a function which is analytic in the upper half-plane

PERIODICAL: Referativnyy zhurnal, Matematika, no. 3, 1962, 30, 31, abstract 3B137. ("Probl. mekhaniki sploshn. sredy", M., AN SSSR, 1961, 310-317)

TEXT: The author designates the function

$$f^{(s)}(x) = \left\{ \frac{d^s}{d\vartheta^s} \left[f(\cos \theta) \right] \right\}_{\theta \, = \, \text{arc cos } x}$$

as the trigonometric derivative of order s of the function f(x). Let $W^{(2k)} \left[M_{2k}; -1, 1 \right]$ denote the class of functions defined on $\left[-1, 1 \right]$ and satisfying the following conditions: 1) they have trigonometric derivatives up to order 2k-1 which are continuous everywhere on $\left[-1, 1 \right]$ except at the point x = 0; 2) they have bounded derivatives of order 2k:

$$\left| f^{(2k)}(x) \right| \leqslant M_{2k} \; ;$$

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On two representations of a function ...

3) the functions and their trigonometric derivatives have jumps of the first kind at $x = 0$. The following problem is considered. Determine an approximate analytic representation for a function $\phi(z)$ $[\phi(\omega)$ at infinity$]$ which satisfies the following mixed boundary conditions on the real axis: Re $\phi(x) = 0$ for $|x| \geq 1$, $\phi(x) = f_1(x) + if_2(x)$ for $|x| \leq 1$, where $f_1(x)$ and $f_2(x)$ are given functions of class $W^{(2k)}[M_{2k}; -1, 1]$.

Given are two representations of the kind

$$\phi(z) = \sum_{s=1}^{k} a_s \chi_s(z) + \sum_{m=1}^{n} \frac{b_m}{(z+\sqrt{z^2-1})^m} + \phi(\infty) + R_n(z) .$$

The functions $\{\chi_s(z)\}$ are expressed by series of powers of x and of Chebyshev polynomials, introduced and tabulated by the author (Rzh. Mat., 1961, 12B246). The coefficients $\{a_s\}$ are expressed by the values of the functions $f_2(x)$ and $f_1(x)$ at the points $x = \pm 1$ and by the jumps

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On two representations of a function ...   S/044/62/000/003/016/092
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made either only by $f_1(x)$ and its trigonometric derivatives (1st representation), or only by $f_2(x)$ and its trigonometric derivatives (2nd representation) at $x = 0$. The coefficients b_m depend, further, on the Fourier coefficients of the expansion of $f_1^m(x)$ in terms of Chebyshev polynomials $U_\nu(x)$ (1st representation), or the expansion of $f_2(x)$ in terms of Chebyshev polynomials $T_\nu(x)$ 2nd representation). An estimate of order $8M_{2k} \ln n / n^{2k}$ is given for the remainder $R_n(x)$ (a more exact expression is given). To arrive at the approximate representation, the author uses the known rigorous representation (Muskhelishvili, N. I., "Singulyarnyye integral'nyye uravneniya" [Singular Integral Equations]; Gakhov, I. D. (Rzh. Mat., 1961, 8B104K)), into which he then substitutes a representation of the function of class $W^{(2k)}$ $[M_{2k}; -1, 1]$ found earlier by the author (cf. mentioned review).

[Abstracter's note: Complete translation.]

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PYKHTEYEV, G.N.

Exact method for calculating certain integrals having a Cauchy type
kernel. Dokl. AN SSSR 140 no.3:536-539 S '61.   (MIRA 14:9)

1. Institut gidrodinamiki Sibirskogo otdeleniya AN SSSR.
Predstavleno akademikom P.Ya.Kochinoy.
                                  (Integrals)

GUREVICH, M.I.; PYKHTEYEV, G.N.

Approximate solution to the problem of the flow of a heavy ideal incompressible liquid emerging from under a shield. PMTF no.2: (MIRA 14:6)
3-14 Jl-Ag 60.   (Hydrodynamics)

PYKHTEYEV, G. N., GUREVICH, M.J.   (Moscow)

"On the Problem of Flow Through a Gate."

report presented at the First All-Union Congress on Theoretical and Applied
Mechanics,Moscow, 27 Jan - 3 Feb 1960.

PYKHTEYEV, G.N. (Moskva)

Cavitation flow of an ideal noncompressible liquid in a
slit. Prikl.mat.i mekh. 24 no.1:157-161 Ja-F '60.
(MIRA 13:6)

(Cavitation) (Fluid dynamics)

PYKHTEYEV, G.N. (Moskva)

Calculating singular integrals with a Cauchy-type nucleus by means
of some special functions. Inzh.sbor.' 31:240-2 53 '61.
(MIRA 14:6)

1. Institut mekhaniki AN SSSR.
            (Integrals)   (Functional analysis)

28725
S/020/61/140/003/004/020
C111/C222

AUTHOR: Pykhteyev, G. N.

TITLE: An exact method for evaluating certain integrals with a
               Cauchy type kernel

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 3, 1961,
               536-539

TEXT: The author gives a method for the rigorous calculation of the
integrals

$$J(x) = \frac{1}{\pi} \int_{-1}^{1} \frac{f(t)}{t-x} dt \quad (-1 < x < 1); \tag{1}$$

$$I(x) = \frac{\sqrt{1-x^2}}{\pi} \int_{-1}^{1} \frac{f(t)}{t-x} \frac{dt}{\sqrt{1-t^2}} \quad (-1 < x < 1). \tag{2}$$

$$G(x) = \frac{1}{\pi} \int_{-1}^{1} \frac{f(t)}{t-x} dt \quad (1 < x < \infty); \tag{3}$$

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$$E(x) = \frac{\sqrt{x^2-1}}{\pi} \int_{-1}^{1} \frac{f(t)}{t-x} \frac{dt}{\sqrt{1-t^2}} \quad (1 \leqslant x \leqslant \infty). \tag{4}$$

The method is based on the theorem: Let $F(\zeta)$, $\zeta = \xi + i\eta$, be analytic in $|\zeta| \leqslant 1$ and satisfy the condition

$$\mathrm{Im}\ F(\zeta) = 0 \text{ for } \eta = 0. \tag{5}$$

Then there hold the relations

$$J(x) = \frac{1}{\pi} \int_{-1}^{1} \frac{\mathrm{Im}\, F\,(t - i\sqrt{1-t^2})}{t-x}\, dt = \mathrm{Re}\, F\,(x - i\sqrt{1-x^2}) - F\,(0)$$
$$(-1 \leqslant x \leqslant 1); \tag{6}$$

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$$I(x) = \frac{\sqrt{1-x^2}}{\pi} \int_{-1}^{1} \frac{\operatorname{Re} F(t - i\sqrt{1-t^2})}{t-x} \frac{dt}{\sqrt{1-t^2}} = -\operatorname{Im} F(x - i\sqrt{1-x^2})$$

$$(-1 < x < 1); \tag{7}$$

$$O(x) = \frac{1}{\pi} \int_{-1}^{1} \frac{\operatorname{Im} F(t - i\sqrt{1-t^2})}{t-x} dt = F(x - \sqrt{x^2-1}) - F(0) \quad (1 < x < \infty); \tag{8}$$

$$E(x) = \frac{\sqrt{x^2-1}}{\pi} \int_{-1}^{1} \frac{\operatorname{Re} F(t - i\sqrt{1-t^2})}{t-x} \frac{dt}{\sqrt{1-t^2}} = -F(x - \sqrt{x^2-1})$$

$$(1 < x < \infty). \tag{9}$$

Choosing e. g. $F(\zeta) = \operatorname{arc} \operatorname{tg} (\zeta \operatorname{tg} \frac{\alpha}{2})$ then one obtains the integrals

$$\frac{1}{\pi} \int_{-1}^{1} \frac{1}{t-x} \ln \frac{1 - \sqrt{1-t^2}\sin\alpha}{1 + \sqrt{1-t^2}\sin\alpha} dt = 2\operatorname{arc} \operatorname{tg}(x \operatorname{tg}\alpha) \quad (-1 < x < 1);$$

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$$\frac{\sqrt{1-x^2}}{\pi} \int\limits_{-1}^{1} \frac{\text{arc tg}\,(t\,\text{tg}\,\alpha)}{t-x} \frac{dt}{\sqrt{1-t^2}} = -\frac{1}{2}\ln\frac{1-\sqrt{1-x^2}\sin\alpha}{1+\sqrt{1-x^2}\sin\alpha} \quad (-1 < x < 1);$$

(14)

$$\frac{1}{\pi}\int\limits_{-1}^{1}\frac{1}{t-x}\ln\frac{1-\sqrt{1-t^2}\sin\alpha}{1+\sqrt{1-t^2}\sin\alpha}\,dt = 4\,\text{arc tg}\left((x-\sqrt{x_1-1})\,\text{tg}\,\frac{\alpha}{2}\right).$$

$$(1 < x < \infty);$$

$$\frac{\sqrt{x^2-1}}{\pi}\int\limits_{-1}^{1}\frac{\text{arc tg}\,(t\,\text{tg}\,\alpha)}{t-x}\frac{dt}{\sqrt{1-t^2}} = -2\,\text{arc tg}\left((x-\sqrt{x^2-1})\,\text{tg}\,\frac{\alpha}{2}\right)$$

$$(1 < x < \infty).$$

which appear for the flow around of curvilinear hindrances (cf. (Ref.7:
G. N. Pykhteyev, DAN, 108, no. 1, 1956)). Choosing

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$$F(\zeta) = \frac{1}{\pi} (\zeta - \frac{1}{\zeta}) \int_0^\zeta \ln \frac{1+t}{1-t} \frac{dt}{t} \quad \text{then one obtains}$$

$$\frac{1}{\pi} \int_{-1}^1 \frac{\sqrt{1-t^2}\,\mathrm{arc}\sin t}{t-x} dt = \frac{4}{\pi} \sqrt{1-x^2}\left[L\left(\frac{\pi}{2}\right) - L(u(x)) - \right.$$
$$\left. - L\left(\frac{\pi}{2} - u(x)\right)\right] - \frac{2}{\pi} \; (-1 < x < 1),$$

$$\frac{1}{\pi} \int_{-1}^1 \frac{L(u(t)) + L\left(\frac{\pi}{2} - u(t)\right) - L\left(\frac{\pi}{2}\right)}{t-x} dt = \frac{\pi}{4} \mathrm{arc}\sin x \quad (-1 < x < 1);$$

$$\frac{1}{\pi} \int_{-1}^1 \frac{\sqrt{1-t^2}\,\mathrm{arc}\sin t}{t-x} dt = \frac{2}{\pi} \sqrt{x^2-1}\, N(v(x)) - \frac{2}{\pi} \quad (1 < x < \infty);$$

$$\frac{1}{\pi} \int_{-1}^1 \frac{L(u(t)) + L\left(\frac{\pi}{2} - u(t)\right) - L\left(\frac{\pi}{2}\right)}{t-x} dt = \frac{1}{2} N(v(x)) \quad (1 < x < \infty). \quad (15)$$

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An exact method for . . .

where $L(u) = - \int_0^u \ln \cos \varphi \, d\varphi$ $(0 \leqslant u \leqslant \frac{\pi}{2})$ and $N(v) = \int_0^v \ln \frac{1+t}{1-t} \frac{dt}{t}$

$(0 \leqslant v \leqslant 1)$. These integrals appear in (Ref. 8: S. J. Parkhomovs'kiy, Prikl. mekh. AN URSR, 4, no. 4, 1958). There are 7 Soviet-bloc and 1 non-Soviet-bloc reference.

ASSOCIATION: Institut gidrodinamiki Sibirskogo otdeleniyaAkademii nauk SSSR (Institute of Hydrodynamics of the Siberian Branch of the Academy of Sciences USSR)

PRESENTED: April 19, 1961, by P. Ya. Kochina, Academician

SUBMITTED: April 5, 1961

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124-1957-1-464 D

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 1, p 58 (USSR)

AUTHOR: Pykhteyev, G. N.

TITLE: Some Problems of the Stalled Flow of an Ideal Incompressible Fluid Past a Curvilinear Obstacle (Nekotoryye zadachi otryvnogo obtekaniya krivolineynogo prepyatstviya potokom ideal'noy neszhimayemoy zhidkosti)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Candidate of Physico-Mathematical Sciences, presented to the In-t mekhan. AN SSSR (Institute of Mechanics, USSR Academy of Sciences), Moscow, 1956

ASSOCIATION: In-t mekhan. AN SSSR (Institute of Mechanics, USSR Academy of Sciences), Moscow

1. Liquids--Flow--Analysis

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16.7600

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SOV/40-24-1-23/28

AUTHOR: Pykhteyev, G. N. (Moscow)

TITLE: Cavitational Flow of a Perfect Noncompressible Fluid
               in a Slot

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol 24,
               Nr 1, pp 157-161 (USSR)

ABSTRACT: Using conformal mapping methods, the author solves
               the problem of plane cavitational flow of a perfect
               noncompressible weightless fluid in an infinitely long
               slot. This is a generalization of the flow in a Borda
               mouthpiece. The dependence of the relative cavity
               length and the flux compression coefficient

$$\lambda = \frac{l}{H}, \qquad \varepsilon = 1 - \frac{h}{H} \qquad (1.1)$$

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ible Fluid in a Slot

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on the dimensionless cavitation numbers K_1 and K_2
given by

$$\varkappa_1 = \frac{p_1 - p_0}{1/2 \rho V_1^2}, \qquad \varkappa_2 = \frac{p_2 - p_0}{1/2 \rho V_2^2} \qquad (1.2)$$

is determined. Here, p_0 is the pressure inside the
cavity and V_0 is the (constant) velocity on the boundary
of the cavity; p_1 and p_2 are the pressures at infinity
in front of the slot and in the slot, respectively.
V_1 and V_2 are the velocities at infinity of the incom-
ing stream and the stream in the slot, respectively.
H is the width of the slot, ℓ is the horizontal
distance between the points on the cavity boundary
farthest to the right and left, and h is the distance

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Cavitational Flow of a Perfect Noncompress-   77995
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of the lowermost point on the cavity boundary from the
upper (horizontal) wall of the slot. By a suitable
mapping of the domain of the complex potential $W = W(z)$
and by solving a boundary value problem, the author
obtains formulas for W and z in terms of the total fluid
discharge, a complex variable ζ, and the parameters
of the flow. From this, he gets the equation of the free
boundary which possesses two tangents perpendicular to
the walls and one tangent parallel to the wall. This is
then used to determine the relative cavity length and
compression coefficient. For certain parameter values,
these results are shown to reduce to (a) the flow through
an infinitely long slot with a finite cavity of a fluid
which is at rest at infinity; (b) the flow through an
infinitely long slot with the fluid moving at infinity;
and (c) the flow through a Borda mouthpiece. There are
5 figures; and 6 references, 1 German, 1 U.S., and 4
Soviet. The U.S. reference is: D. Gilbarg, D. H. Rock,
Naval Ordnance Laboratory Memo 8718, 1945.

SUBMITTED: July 21, 1959   Card 3/3

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S/040/60/024/006/019/024
C 111/ C 333

AUTHOR: Pykhteyev, G. N. (Novosibirsk)

TITLE: On the Calculation of Some Integrals With Regular Kernel
      of Cauchy Type

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol. 24, No.6,
          pp. 1114-1122

TEXT: The author considers the approximative evaluation of the integrals

$$(0.1) \quad G(x) = \frac{1}{\pi}\int_{-1}^{1}\frac{f(t)}{t-x}\,dt, \quad E(x) = \frac{\sqrt{x^2-1}}{\pi}\int_{-1}^{1}\frac{f(t)}{t-x}\frac{dt}{\sqrt{1-t^2}} \quad (1 \leq x \leq \infty).$$

Let $f^{(s)}(t)$ be defined by

$$(3.1) \quad f^{(s)}(t) = \left(\frac{d^s}{d\theta^s}\right)f(\cos\theta)\Big)_{\theta = \arccos t} \quad (s = 0,1,\dots).$$

X

Let $W_\gamma^{(2k)}(M_{2k}; -1,1)$ be the class of the functions which satisfy
the following conditions:
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On the Calculation of Some Integrals With Regular Kernel of Cauchy
Type

1. There exist $f^{(s)}(t)$, $s = 0,1,\ldots,$ $(2k-1)$ on $[-1,1]$ except in
the point $t = 0$.

2. (3.2) $|f^{(2k)}(t)| \leqq M_{2k}$

3. (3.3) $2\gamma^{(s)} = f^{(s)}(+0) - f^{(s)}(-0)$ for $s = 0,1,2,\ldots (2k-1)$.

The following notations are introduced

(3.4) $2\gamma_1^{(s)} = f^{(s)}(1) + f^{(s)}(-1)$, $2\gamma_2^{(s)} = f^{(s)}(1) - f^{(s)}(-1)$

$$(s = 0,1,\ldots, 2k)$$

(3.5) $a_1^* = a_1$, $a_2^* = a_2$; $b_1^* = b_1$, $b_2^* = b_2$

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Type

$$a_{2m}{}^* = a_{2m} + \frac{4}{\pi}\sum_{s=1}^{k}\frac{(-1)^s}{(2m)^{2s}}((-1)^m\gamma^{(2s-1)} - \gamma_2{}^{(2s-1)})$$

$$a_{2m-1}{}^* = a_{2m-1} - \frac{4}{\pi}\sum_{s=1}^{k}\frac{(-1)^s}{((2m-1)^{2s}}((-1)^m(2m-1)\gamma^{2(s-1)} + \gamma_1{}^{(2s-1)})$$

$$b_{2m}{}^* = b_{2m} - \frac{4}{\pi}\sum_{s=1}^{k}\frac{(-1)^s}{(2m)^{2s-1}}((-1)^m\gamma^{2(s-1)} - \gamma_1{}^{2(s-1)}) \qquad (3.6)$$

$$b_{2m-1}{}^* = b_{2m-1} - \frac{4}{\pi}\sum_{s=1}^{k}\frac{(-1)^s}{(2m-1)^{2s}}((-1)^m\gamma^{(2s-1)} - (2m-1)\gamma_1{}^{2(s-1)})$$

$(3.7)\quad N(n,k) = 4(n+1)^{-2k}\left(1 + \ln\frac{\pi}{2} + \frac{1}{2k} + \frac{1}{2n} + \ln n\right),$

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where a_n, b_n are given by

(1.5) $a_n = \dfrac{2}{\pi} \displaystyle\int_{-1}^{1} f(t) T_n(t) \dfrac{dt}{\sqrt{1-t^2}}$, $b_n = \dfrac{2}{\pi} \displaystyle\int_{-1}^{1} f(t) U_n(t) \dfrac{dt}{\sqrt{1-t^2}}$

and it holds

(1.1) $T_n(t) = \cos n \arccos t$, $U_n(t) = \sin n \arccos t$.

The main result of the paper is the theorem 3: Let $f(t) \in W_\gamma^{(2k)}$ $(M_{2k}; -1, 1)$. Then

$$\theta(z) \approx G_n^{(k)}(z) = \frac{4}{\pi} \sum_{s=1}^{k} (-1)^s [\eta^{s(s-1)} M_1^{(s-1)}(z^{**}) + \eta^{s(s-1)} M_s^{(s-1)}(z^{**})$$

$$- \eta^{(s-1)} N_1^{(s)}(z^{**}) - \eta^{s(s-1)} N_s^{(s-1)}(z^{**})] - \sum_{m=1}^{s} b_m z^{m} \qquad (4.1)$$

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$$E(x) \approx E_n^{(k)}(x) = \frac{4}{\pi} \sum_{s=1}^{n} (-1)^{s-1} [\tau_1^{(2s-1)} M_1^{(2s)}(x^{**}) + \tau_2^{(2s-1)} M_2^{(2s)}(x^{**}) +$$

(3.8)

$$+ \tau^{2(s-1)} N_1^{(2s-1)}(x^{**}) - \tau^{(2s-1)} N_2^{(2s)}(x^{**})] - \frac{a_0}{2} - \sum_{m=1}^{n} a_m x^{**m} \qquad (4.2)$$

where it holds the estimation

$$(4.3) \quad |G(x) - G_n^{(k)}(x)| < 2M_{2k} N(n,k), \quad |E(x) - E_n^{(k)}(x)| < 2M_{2k} N(n,k)$$

Here $x^{**} = x - \sqrt{x^2 - 1}$, $1 \leq x < \infty$. The functions $M_1^{(s)}$, $M_2^{(s)}$, $N_1^{(s)}$, $N_2^{(s)}$ are defined by

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On the Calculation of Some Integrals With Regular Kernel of Cauchy Type

$$M_1^{(s)}(x) = \sum_{n=1}^{\infty} \frac{1}{(2n-1)^s} x^{2n-1}, \quad M_2^{(s)}(x) = \sum_{n=1}^{\infty} \frac{1}{(2n)^s} x^{2n} \quad \left(\begin{matrix} 0 \leq x \leq 1 \\ s = 1, 2, \dots \end{matrix} \right) \quad (2.1)$$

$$N_1^{(s)}(x) = \sum_{n=1}^{\infty} \frac{(-1)^n}{(2n-1)^s} x^{2n-1}, \quad N_2^{(s)}(x) = \sum_{n=1}^{\infty} \frac{(-1)^n}{(2n)^s} x^{2n} \quad \left(\begin{matrix} 0 \leq x \leq 1 \\ s = 1, 2, \dots \end{matrix} \right) \quad (2.2)$$

Moreover, the following tables are given

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On the Calculation of Some Integrals With Regular Kernel of Cauchy Type

table 1

x	$M_1^{(1)}$	$M_1^{(2)}$	$M_1^{(3)}$	$M_1^{(4)}$	$M_2^{(1)}$	$M_2^{(2)}$	$M_2^{(3)}$	$M_2^{(4)}$
0.1	0.0003	0.0001	0.0^4004	0.0^4001	0.0^4002	0.0^4001	0.0^4002	0.0^4004
0.2	0.0027	0.0009	0.0003	0.0001	0.0004	0.0003	0.0^4002	0.0^4001
0.3	0.0100	0.0031	0.0010	0.0003	0.0022	0.0005	0.0001	0.0^4003
0.4	0.0236	0.0076	0.0025	0.0008	0.0072	0.0017	0.0004	0.0001
0.5	0.0493	0.0153	0.0049	0.0016	0.0188	0.0044	0.0011	0.0003
0.6	0.0932	0.0278	0.0087	0.0028	0.0431	0.0097	0.0023	0.0006
0.7	0.1673	0.0473	0.0144	0.0046	0.0917	0.0196	0.0045	0.0010
0.8	0.2986	0.0773	0.02225	0.0070	0.1908	0.0375	0.0081	0.0019
0.9	0.5722	0.1259	0.0341	0.0102	0.4254	0.0713	0.0143	0.0031
1.0	∞	0.2337	0.0518	0.0147	∞	0.1612	0.0253	0.0051

Table 1

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Cauchy Type

table 2

z	$N_1^{(1)}$	$N_1^{(2)}$	$N_1^{(3)}$	$N_1^{(4)}$	$N_2^{(1)}$	$N_2^{(2)}$	$N_2^{(3)}$	$N_2^{(4)}$
0.1	0.0003	0.0001	0.0*004	0.0*001	0.0*002	0.0*001	0.0*002	0.0*004
0.2	0.0026	0.0009	0.0003	0.0001	0.0004	0.0001	0.0*002	0.0*001
0.3	0.0065	0.0029	0.0010	0.0003	0.0019	0.0005	0.0001	0.02003
0.4	0.0195	0.0067	0.0023	0.0008	0.0058	0.0015	0.0004	0.0001
0.5	0.0364	0.0128	0.0044	0.0015	0.0134	0.0035	0.0009	0.0002
0.6	0.0596	0.0214	0.0074	0.0026	0.0263	0.0070	0.0018	0.0005
0.7	0.0893	0.0327	0.0116	0.0040	0.0456	0.0124	0.0033	0.0009
0.8	0.1253	0.0469	0.0168	0.0059	0.0726	0.0202	0.0054	0.0014
0.9	0.1672	0.0640	0.0233	0.0082	0.0867	0.0307	0.0084	0.0021
1.0	0.2146	0.0840	0.0310	0.0111	0.1534	0.0444	0.0123	0.0033

The formulas (4.1), (4.2) become simpler, if f(t) and its deriva-
tives are continuous in t = 0, or if f(t) is even or odd.

The author thanks V. M. Yegorov for assistance in computing the
tables. He mentions S. M. Nikol'skiy.

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On the Calculation of Some Integrals With Regular Kernel of
Cauchy Type

There are 2 tables, and 5 Soviet references.

ASSOCIATION: Institut gidrodinamiki Sib. otd. AN SSSR (Institute
of Hydrodynamics of the Siberian Department of the
Academy of Sciences USSR)

SUBMITTED: April 15, 1960

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SOV/124-58-11-12550

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 11, p 86 (USSR)

AUTHORS: Gurevich, M. I., Pykhteyev, G. N.

TITLE: On Some Methods of the Solution of Theoretical Problems Concerning a Heavy Liquid Jet (O nekotorykh metodakh resheniya zadach teorii struy tyazheloy zhidkosti)

PERIODICAL: Tr. Mosk. tekhn. in-ta rybn. prom-sti i kh-va, 1957, Nr 8, pp 48-65

ABSTRACT: Presentation of a paper by Marchi (Marchi, Enrico, Ann. mat. pura ed appl., 1953, Vol 35, pp 327-341; RZhMekh, 1955, Nr 1, abstract 154), together with a description of the Woronetz method (Woronetz, Constantin, C. r. Acad. Sci., 1953, Vol 236, Nr 3, pp 271-273; RZh Mekh, 1953, Nr 1, abstract 144). The authors adduce a solution of the Marchi problem by means of the Woronetz method. A detailed computation is given for a single case, which shows an almost identical coincidence of the numerical results obtained by the Marchi method and the Woronetz method. This is followed by a brief explanation of the well-known solution by N. Ye. Kochin relative to the flow of a heavy liquid through a spillway outlet. Thereupon the same problem

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SOV/124-58-11-12550

On Some Method of the Solution of Theoretical Problems Concerning a Heavy Liquid

is solved by the Marchi and Woronetz methods. It is shown that these approximate methods for the solution of the exact problem yield a rougher approximation than the exact solution of the linearized problem set forth by N. Ye. Kochin. The mean depth at infinity obtained by the Marchi method coincides with N. Ye. Kochin's result. The Woronetz method yields a less accurate result.

N. N. Moiseyev

Card 2/2

PYKHTIN, P.; SURKOV, B.

Retreading tires. Avt.transp. 38 no.6:27 Je '60.   (MIRA 14:4)

1. Saratovskiy avtotrest.
                    (Motor vehicles--Tires)

PYKHTIN, P.; SURKOV, B.

      Liquified gas as fuel for motor vehicles. Avt. transp. 38 no. 5:54
      My '60.   (MIRA 14:2)

      1. Saratovskiy avtotrest.
          (Motor vehicles—Engines (Compressed gas)

PYKHTIN, V.Ya.

    Economic efficiency of using lignite briquets for communal
and household needs of the people. Nauch. trudy MGI no.43:
81-85 '62.
          (MIRA 16:9)
           (Briquets (Fuel))

PYKHTIN, V.Ya., aspirant

Problems in the fuel supply of rural areas. Nauch. trudy MGI no.43:39-44 '62.   (MIRA 16:9)
                        (Fuel)

SOV/147-59-2-18/20

AUTHORS: Pykhtin, Yu. A. and Ronzin, V.D. (Perm')

TITLE: Measurement of Temperature Stresses (Izmereniye temperaturnykh napryazheniy)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1959, Nr 2, pp 151-155 (USSR)

ABSTRACT: The development and testing of an experimental method of measuring thermal stresses with the aid of temperature-compensated wire tensometers (nichrome - constantine, nichrome being a nickel, chromium, iron alloy) in the temperature range from 0° to 180°C are reported. Temperature-compensated tensometers (see Ref 3 and 4) are tensometers made of two wires having temperature resistance coefficients of different sign and joined in series in the grid of the tensometer. Testing was carried out by employing a system whose temperature field and stresses resulting from it are known exactly. This consisted of a steel disc with a central hole of radius ro and of a constant thickness. The disc was heated along its outer periphery (constant temperature) and cooled along the central hole (constant

Card 1/3

Measurement of Temperature Stresses

temperature) as shown in Fig 2, where: 1 - disc;
2 - ceramic coating; 3 - heating element;
4 - asbestos; 5 - brick; 6 - stopper. Distribution
of temperature in the disc was measured by two
different methods: thermo-couples and the above
tensometers (which were arranged in radial and
circumferential directions) as shown in Fig 1.
As shown in Ref 1, the radial and tangential stresses
for such a disc are given by Eq (1), the constants of
integration being given by Eq (2) and (3) for which
the temperature distribution $t = f(r)$ must be
determined experimentally. For the above disc it is
shown in Fig 4, which is nearly a linear function.
Table 1 gives the radial and tangential strains as
found by these tensometers, from which by Eq (10)
and (11) the stresses can be computed. The results
are shown in Fig 5, the curve being the theoretical
Card 2/3   values and the points being the experimental values.

SOV/147-59-2-18/20

Measurement of Temperature Stresses

Agreement is completely satisfactory. There are
5 figures, 1 table and 4 Soviet references.

SUBMITTED: December 29, 1958

Card 3/3

PYKHTIN, Yu.A.

    Eliminating temperature errors in operating thermocompensated
strain gauges. Izm.tekh. no.2:23-24 Mr-Ap '58.   (MIRA 11:3)
               (Strain gauges)

BABICHEV, V.A., dots.; PYKHTINA,A.A., dots.; KOVALEV, I.Ye.,
assistent; LAKIN, K.M., assistent; TOLVINSKAYA, L.S.,
assistent; SAPEZHINSKAYA, N.V., assistent; SERGEYEV,
P.V., assistent; VASIL'YEVA, V.V., doktor med. nauk,
prof., red.; VISHNEVETSKAYA, L.B., tekhn. red.

[Laboratory manual in pharmacology and general pre-
scription writing] Rukovodstvo k prakticheskim zania-
tiiam po farmakologii i obshchei retsepture. Moskva,
1962.   79 p.   (MIRA 16:4)

1. Moscow. Vtoroy Moskovskiy meditsinskiy institut.
    (PHARMACOLOGY—LABORATORY MANUALS)
        (PRESCRIPTION WRITING)

PYKHTINA, A. A., Physician

"The Comparative Action on an Crganism of Papaverine, Neutralized Nicotinic Acid, and Pilccarpine, Taking Intc Account the Effect on the Peripheral Receptor Apparatus." Sub 25 Jun 51, Second Moscow State Medical Inst imeni I. V. Stalin.

Dissertations presented for science*and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55.

* Cand. Medical Sci.

PYEHTINA, A.A., SKVORTSOV, V.I., professor, deysvitel'nyy chlen Akademii medi-
tsinskikh nauk SSSR, zaveduyushchiy.

Effect of papaverine, sodium nicotinate and pilocarpine upon the inter-
oceptors of the spleen, small intestine and cauda. Farm.i toks. 16 no.3:
12-14 My-Je '53.   (MLRA 6:7)

1. Kafedra farmakologii II Moskovskogo meditsinskogo instituta imeni I.V.
Stalina. 2. Akademiya meditsinskikh nauk SSSR (for Skvortsov).
        (Nervous system) (Papaverine) (Pilocarpine)

USSR •

The comparative effect of papaverine, sodium nicotinate, and of pilocarpine on the organism with special reference to the peripheral receptor apparatus. A. A. Pykhtina (1. V. Stalin 2nd State Med. Inst., Moscow). *Trudy Vsesoyus. Obshchestva Fiziologov, Biokhimikov i Farmakologov, Akad. Nauk S.S.S.R.* 2, 181-8(1954); cf. *C.A.* 47, 12054b, 49, 7749c.--Receptors of the carotid sinuses were blocked out by the administration of procaine, following which the depressing effect of papaverine was enhanced; hypertension normally caused by Na nicotinate in most cases became more clearly defined, while pilocarpine hypertension remained unaffected. The reflex reaction upon circulation and respiration was observed upon stimulation of the interoceptors of the spleen, small intestine, and the hind leg with papaverine hydrochloride and pilocarpine in 1/1000 concn., and Na nicotinate in 1/100 concn. In *in vitro* expts. papaverine and pilocarpine suppressed the activity of cholinesterase and catalase; Na nicotinate had no effect on carbohydrase, catalase, or cholinesterase. Repeated subdermal injections into the rabbit of papaverine enhanced the activity of blood cholinesterase but had no effect upon carbohydrase and catalase. Na nicotinate under similar conditions had no effect on the blood enzymes. The results of the *in vitro* and *in vivo* expts. were not in complete agreement.   B. S. Levine

PYKHTINA, A.A.

USSR/Medicine - Pharmacology   FD-1909

Card 1/1   Pub. 38-8/18

Author   : Pykhtina, A. A.

Title   : Analysing the action of papaverine

Periodical : Farm. i. toks., 17, 33-36, Nov/Dec 1954

Abstract   : Investigated the effect of papaverine on the nervous system. Papaverine
               was introduced to the blood stream and the resultant effects on the blood
               vessels of the isolated spleen, small intestine, and anus were observed.
               A vascular contraction was noted as a result of the action of papaverine
               on the central and peripheral nerve mechanisms. A dose of one milligram
               of papaverine per kilogram weight of animal caused a drop in blood pres-
               sure and a vascular contraction in the above isolated organs. 0.5 milli-
               grams per kilogram caused only a drop in the total blood pressure of the
               entire organism. Three graphs; eight references (six since 1940, seven
               USSR).

Institution: Chair of Pharmacology (Head - Acting Member Acad Med Sci USSR V. I.
              Skvortsov II Moscow Medical Inst imeni I. V. Stalin

Submitted   :
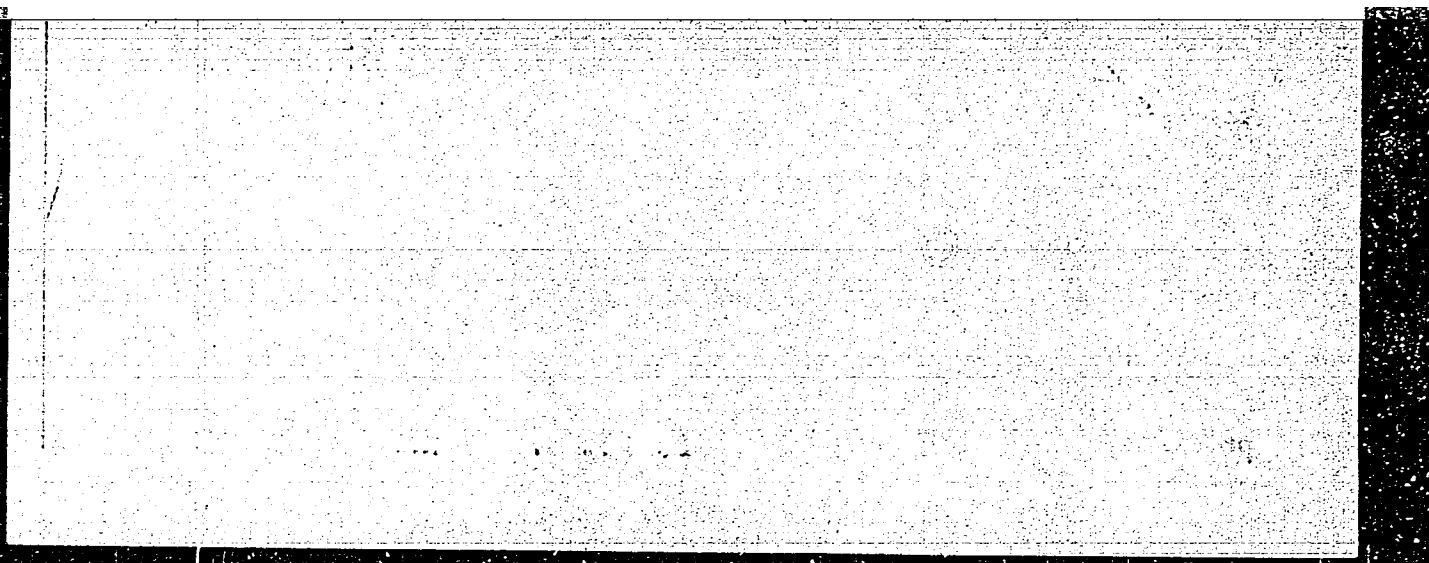
PYKHTINA, A. A.

USSR / Pharmacology, Toxicology. Cardiovascular Agents   U-6

Abs Jour   : Referat Zh.-Biol., No 1, 1958, No 3512

Author   : Pykhtina, A.A.

Inst   : Not given

Title   : The Combined Use of Papaverine with Tiphen, Dibasol and
              Salsolin.

Orig Pub   : Farmakol. i toksikologiya, 1956(1957).

Abstract   : Cats anesthetized with urethan received intravenous
              injections of papaverine (1 mg/kg), tiphen, dibasol
              (1-2 mg/kg), and salsolin (10 mg/kg). Papaverine lowered
              the blood pressure by 14-38 mm of Hg, tiphen by 6-20 mm, and
              simultaneous administration of papaverine with tiphen by
              42-76 mm. Papaverine caused a blood pressure depression of
              3-14 min duration, dibasol of 2-5 min duration, and a combined

Card 1/2

USSR / Pharmacology, Toxicology, Cardiovascualr Agents.   U-6

Abs Jour   : Referat Zh.-Biol., No 1, 1958, No 3512

Abstract   : papaverine - dibasol injection resulted in a B.P. lowering
              lasting for 10-27 min. Salsolin caused hypotension in 48 sec-
              8 min and a papaverine - salsolin combination in 5-20 min.ι
              Some experiments were performed on animals with hypertension
              caused by an intravenous injeotion of pituitrin (1 ml.3 kg).
              Papaverine with tiphen, under normal conditions, lowered the
              blood pressure by 34-56 mm of Hg and, in hypertension, by
              42-62 mm of Hg for a shorter time. The papaverine-dibásol
              combination had the same effect in normal and hypertensive
              animals. Papaverine with salsolin caused a B.P. depression
              of 42-62 mm under normal conditions, and of 56-80 mm after
              pituitrin.

Card 2/2

TOMILINA, T.N.; POSKALENKO, A.N.; MALYGINA, Ye.I.; IGNA.'YEVA,
    M.A.; ANICHKOV, S.V., prof., red.; PYKHTINA, A.A.,
    red.

[Practical work in pharmacology] Praktikum po farmakologiii.
Moskva, Meditsina, 1965. 189 p.   (MIRA 18:2)

1. Deystvitel'nyy chlen AMN SSSR (for Anichkov).

PYKHTINA, A.A.

Effect of papaverine, tiphen and dibazol on the ascending
reticular formation of the brainstem. Farm. i toks. 28
no.5:524-527 S-O '65.   (MIRA 18:12)

1. Kafedra farmakologii (zav. - prof. V.V.Vasil'yeva) II
Moskovskogo meditsinskogo instituta imeni N.I.Pirogova.
Submitted July 18, 1964.

PYKHTINA, A.A.

Effect of papaverine, tiphen, and dibazole on the level of sympathomimetic amines and the activity of cholinesterase in the blood of dogs with experimental renal hypertension. Farm.i toks. 28 no.6:719-722 N-D '65.   (MIRA 19:1)

1. Kafedra farmakologii (zav. - prof. V.V.Vasil'yeva) II Moskov-skogo meditsinskogo instituta imeni Pirogova.

ACC NR: AP6034259   (N)   SOURCE CODE: UR/0390/66/029/005/0546/0548

AUTHOR: Pykhtina, A. A.

ORG: Department of Pharmacology /Head-Prof. M. F. Merkylov/, Second
Moscow Medical Institute im. N. I. Pirogova (Kafedra farmakologii
Vtoroy moskovskogo meditsinskogo instituta)

TITLE: Effect of dibazol (2-benzyl-benzimidazole) on the level of
sympathomimetic amines in the organs of albino rats

SOURCE: Farmakologiya i toksikologiya, v. 29, no. 5, 1966, 546-548

TOPIC TAGS: pharmacology, drug effect, RAT, BENZENE DERIVATIVE

ABSTRACT: Dibazol (10 mg/kg) was given to white rats both in single
doses and doses administered over a ten day period. Animals showed
signs of illness within thirty minutes after injections. Examination
of tissues and organs showed that single injections of the compound.
causes an increase in the concentration of sympathomimetic amines.
This level drops during the course of daily injections of the compound.
Orig. art. has: 2 figures.   [W.A. 50]

SUB CODE: 06/ SUBM DATE: 25Sep65/ ORIG REF: 004/ OTH REF: 001

Card 1/1   UDC: 615.717-015.25:615.711.7

L 41442-66   ABT(1)

ACC NR: AP6021314   (N)   SOURCE CODE: UR/0390/65/028/005/0524/0527

AUTHOR: Pykhtina, A. A.

ORG: Department of Pharmacology /headed by Prof. V. V. Vasil'yeva/, Second Moscow Medical Institute im. N. I. Pirogov (Kafedra farmakologii II Moskovskogo meditsinskogo instituta)

TITLE: Effect of papaverine, thiphen, and dibazol on the ascending reticular formation of the brain stem

SOURCE: Farmakologiya i toksikologiya, v. 28, no. 5, 1965, 524-527

TOPIC TAGS: brain, rabbit, pharmacology, nervous system drug

ABSTRACT: The effect of hypotensive substances (papaverine, thipen, and dibazol) on the underlying sections of the brain, particularly on the reticular formation of the brain stem, was studied. Pain stimulation of the hind leg of a rabbit provokes the reaction of activation in the biocurrents of the brain cortex. It was established by the experiments conducted that the intravenous injection of papaverine, thipen or dibazol in a 5 mg/kg dose to urethanized rabbits weakens or prevents the activation reaction in the brain cortex which occurs during the temperature irritation of the hind leg. This depressing effect can be associated with the reticular formation of the brain stem by the above substances. Orig. art. has: 3 figures. /JPRS/

SUB CODE: 06 / SUBM DATE: 18Jul64 / ORIG REF: 006 / OTH REF: 001

Card 1/1   JS   UDC: 615.717+615.783.1/-092.259:612.82

PYKHTINA, A.A.

Comparative effect of papaverine, sinomenine, tiphen, and dibazol on the bioelectric activity and contraction range of the heart. Farm. i toks. 25 no.6:711-716 N-D '62.

(MIRA 17:8)

1. Kafedra farmakologii (zav. - prof. V.V. Vasil'yeva) II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova.

PYKHTINA, A.A.

Changes in bioelectrical activities of the cerebral cortex and optic thalamus under the influence of papaverine, sinomenine, thiphen, and dibazole. Farm.i toks. 23 no.3:220-225 My-Je '60.
(MIRA 14:3)

1. Kafedra farmakologii (zav. - prof. V.V.Vasil'yeva) II Moskovskogo gosudarstvennogo meditsinskogo instituta imeni N.I.Pirogova.
(CEREBRAL CORTEX)   (VASOMOTOR DRUGS)
(OPTIC THALAMUS)

SERENKO, A.S., STANISLAVSKIY, Ya.M., KHAZAN, G.L., KHIZHNYAKOVA, L.N.,
OSETINSKIY, T.G., PROTSENKO, G.A., BARANENKO, A.A., MARCHENKO, N.I.
KOTSYUBENKO, V.K., NESTRUGINA, Z.F., NERUBENKO, A.B., PYKHTINA, O.N.
KRYLOVA, V.K., KOCHKINA, V.N. (Khar'kov).

Hygienic working conditions and the development of pneymoconiosis
among workers in iron ore sintering plants. Gig.truda i prof.zab.
2 no.2:17-20 Mr-Ap'58.   (MIRA 11:6)

1. Ukrainskiy nauchno-issledovatel'skiy institut gigiyeny truda
i prof zabolevaniy.
        (LUNGS--DUST DISEASES)
        (IRON AND STEEL WORKERS--DISEASES AND HYGIENE)

PYKHTUNOV, M.T. (Saratov).

Variation method for the solution of problems in plane elasticity theory for a single-connected area bounded by two arbitrary curved and two parallel straight lines. Inzh.sbor. 15:43-60 '53. (MLRA 7:1)
(Elastic plates and shells)

PYKHTJNOV, N.

      Dahomey Republic. Vnesh. torg. 42 no.5:32-36 '62. (MIRA 15:4)
                  (Dahomey--Economic conditions)

PYKHTUNOV, N.

The Republic of Chad. Vnesh. torg. 43 no.12:24-29 '63. (MIRA 17:2)

PYKHTUNOV, N.

The Republic of Gabon. Vnesh. torg. 43 no.8:28-33 '63.
(MIRA 16:8)

(Gabon--Economic conditions) (Gabon--Commerce)

PYKHTUNOV, N.

Republic of Niger. Vnesh.torg. 43 no.3:22-27 '63.

(MIRA 16:4)

(Niger--Economic conditions)

DAVIDSON, A.G.; DATLIN, S.V.; KIRICHENKO, G.A.; KOROTKOVA, Ye.N.;
    KRAVCHENKO, D.V.; ORLOVA, A.S.; ADADUROVA, A.A.; ARKAD'YEV,
    V.G.; BARDINA, Yu.Ya.; BODYANSKIY, V.L.; BONDAREV, S.N.;
    GLAZACHEV, M.V.; DAVYDOVA, E.A.; IVANOV, V.N.; KARPUSHINA,
    V.Ya.; KREKOTEN', L.P.; LANDA, R.G.; LEVITSKAYA, G.O.; LIPETS,
    Yu.G.; LOGINOVA, V.P.; ONAN, E.S.; PEGUSHEV, A.M.; PYKHTUNOV,
    N.V.; TOKAREVA, Z.I.; KHUDOLEY, V.F.; MILOVANOV, I.V., red.;
    MIKAELYAN, E., red.; MUKHIN, R., red.; SVANIDZE, K., red.;
    KLIMOVA, T., tekhn. red.

    [Africa today; concise reference book on politics and economic
    conditions] Afrika segodnia; kratkii politiko-ekonomicheskii
    spravochnik. Moskva, Gos. izd-vo polit. lit-ry, 1962. 326 p.
                    (Africa--Politics)
                    (Africa--Economic conditions)

PYKHTUNOVA, V.M.

Microclimatological characteristics of certain agricultural
crops and fruits under conditions of the Kuba-Khachmas massif.
Trudy Inst.geog. AN Azerb.SSR 8:63-96 '59. (MIRA 12:11)
             (Azerbaijan--Microclimatology)

PYKHTUHOVA, V.M.

Soil temperature in the Kuba-Khachmas Massif. Izv. AN Azerb. SSR.
Ser. geol.-geog. nauk no.1:139-149 '60.   (MIRA 13:11)
        (Kuba region (Azerbaijan)--Soil temperature)

PYKHTUNOVA, V.M.

Temperature cycle and precipitation conditions of the Kuba-
Khachmas massif. Trudy Inst.geog.AN Azerb.SSR 8:150-188
'59.   (MIRA 12:11)

(Azerbaijan—Climate)